

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A lithographic projection apparatus comprising:
a radiation system to provide a projection beam of radiation;
a support structure constructed and arranged to support patterning structure, the patterning structure which can be used to pattern the projection beam according to a desired pattern;
a substrate table to hold a substrate; and
a radiation source independent of the radiation system constructed and arranged to supply radiation capable of removing contaminant particles adhered to an optical component without substantially heating said optical component.
2. (Currently amended) An apparatus [Apparatus] according to claim 1, wherein said radiation is of at least one type selected from the group [comprising] consisting of microwave and infra-red radiation, and being directed onto said contaminant particles.
3. (Currently amended) An apparatus [Apparatus] according to claim 2, wherein said infra-red radiation comprises at least one frequency in the range of from 1000cm^{-1} to 4600cm^{-1} .
4. (Currently amended) An apparatus [Apparatus] according to claim 3, wherein the infra-red radiation comprises a range of frequencies of from 1000cm^{-1} to 4600cm^{-1} .
5. (Currently amended) An apparatus [Apparatus] according to claim 3, wherein the optical component comprises a compound selected from a group comprising CaF_2 , Ba F_2 , and Mg F_2 .

6. (Currently amended) An apparatus [Apparatus] according to claim 2, wherein said infra-red radiation comprises at least one frequency in the range of from 2800 cm⁻¹ to 4600cm⁻¹.

7. (Currently amended) An apparatus [Apparatus] according to claim 6, wherein the infra-red radiation comprises a range of frequencies in the range of from 2800 cm⁻¹ to 4600cm⁻¹.

8. (Currently amended) An apparatus [Apparatus] according to claim 6, wherein the optical component comprises quartz.

9. (Currently amended) An apparatus [Apparatus] according to claim 2, wherein said infra-red radiation comprises at least one frequency in the range of from 1 to 100cm⁻¹.

10. (Currently amended) An apparatus [Apparatus] according to claim 6, wherein the infra-red radiation comprises a range of from 1 to 100 cm⁻¹.

11. (Currently amended) A device manufacturing method comprising:
projecting a patterned beam of radiation onto a target portion of a layer of radiation-sensitive material on a substrate; and
removing contaminant particles, which are adhered to an optical component through which the beam of radiation passes, by irradiation with a radiation source independent of a source of the patterned beam, said radiation source providing a radiation capable of removing said contaminant particles without substantially heating said optical component.

12. (Original) A method according to claim 11, wherein said irradiation with said radiation is carried out simultaneously with exposure to the projection beam.

13. (Original) A method according to claim 11, further comprising:
determining a level of contamination of the optical component by irradiating said optical component with microwave and/or infra-red radiation and monitoring the degree of absorption of said radiation.

14. (Original) A method according to claim 12, further comprising:
determining a level of contamination of the optical component by irradiating said optical component with microwave and/or infra-red radiation and monitoring the degree of absorption of said radiation.
15. (Original) A method according to claim 11, wherein said contaminant particles are water.
16. (Original) A device manufactured according to the method of claim 11.
17. (New) An apparatus according to claim 1, wherein the radiation source is an adjustable radiation source which can be tuned to different wavelengths.
18. (New) An apparatus according to claim 1, wherein the wavelength of the radiation is selected by a filter.
19. (New) An apparatus according to claim 1, wherein the radiation source is a broad band radiation source.
20. (New) An apparatus according to claim 1, further comprising a radiation sensor constructed and arranged to monitor a level of contamination of the optical component.
21. (New) An apparatus according to claim 20, wherein the level of contamination is monitored by analyzing an absorption of the radiation by the contaminant particles.
22. (New) An apparatus according to claim 20, wherein the radiation sensor is a mass spectrometer.
23. (New) An apparatus according to claim 1, wherein the radiation source is a source selected from the group consisting of an incandescent lamp, a cavity resonator, a backward wave oscillator and a Klystron.